PowerLok™ 10.0 二/三芯弯头插头组装规范
PowerLok™ 10.0 2/3POS 90D Plug Assembly Manual

PL 28 2X - 301 - 70

产品类型 Product Type		插头类型 Plug Type		键位&颜色 Key & Color		系列 Series		线束尺寸 Cable Size	
PL	PowerLok™	28	插头连接器，弯头，非屏蔽 Plug connector, right angle, shielding	2X	2芯，X 键位 橙色 2POS , Key "X" Orange	300	300系列 300 Series	35	35mm²
				2Y	2芯， Y 键位 黑色 2POS , Key "Y" Black			50	50mm²
				3X	3芯，X 键位 橙色 3POS , Key "X" Orange	301	带高压互锁的300系列 300 Series With HVIL	70	70mm²
				3Y	3芯， Y 键位 黑色 3POS , Key "Y" Black				

安装步骤 Assembly Instruction

步骤1：取出连接器, 如图示拆开零件
Step1：Take out the connector and take it apart as the picture shown below

① 尾端扣盖 Tail Cap ×3

② 橡胶密封圈 Rubber Seal ×3

③ 壳体部件 Housing Shell ×1

④ O型圈 O-ring ×3

⑤ 一套绝缘套 A set of Insulators ×3

⑥ 端子组件Terminal Component ×3

⑦ 塑料挡板 Baffle×3

注意：图示为三芯配件，二芯的配件数量为：①尾端扣盖×2，②橡胶密封圈×2，③壳体部件×1，④O型圈 ×2，⑤一套绝缘套 ×2，⑥ 端子组件 ×2，⑦塑料挡板×2，二芯安装方式与三芯安装方法相同

Note: Picture above shows all parts of 3pos connector. Parts of 2 pos connector are ①tail capx2, ②rubber sealx2, ③housing shellx1, ④O-ringx2, ⑤Insulatorsx2, ⑥terminal component x2, ⑦ bafflex2，2pos connector has the same assembly method as 2pos connector

步骤2：选取合适线缆（参考手册最后的附录），按照表1尺寸剥离绝缘皮和外皮
Step2：Select the right cable(refer to the appendix), then prepare the cable according to the sketch and Table 1 below

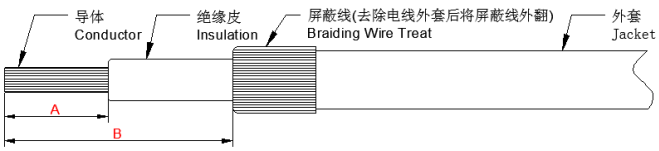


表1：剥皮尺寸

Table 1: Strip length

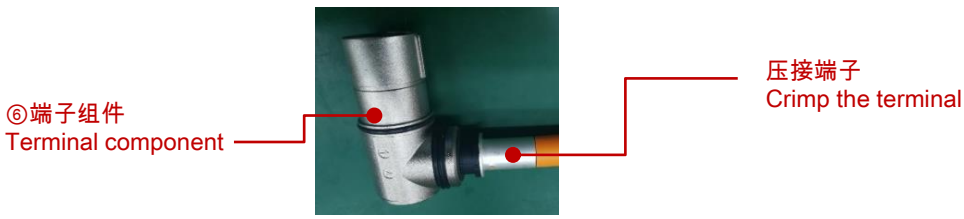
线材尺寸 Cable Size	A (mm)	B (mm)
35mm²	18±1	27 ±1
50mm²	18±1	27 ±1
70mm²	18±1	27 ±1

步骤3：按图示将线缆依次穿过尾端①扣盖、②橡胶密封圈、③壳体部件、④O型圈

Step3：Take 1pcs of ① end cap, ②rubber seal, ③ housing shell and ④O- Ring and make them through the cable in the right order as the picture shown below

步骤4：取1pcs的⑥ 端子组件自左端穿上线缆，并压接在其上(规格参照手册最后的附录,附录数据仅供参考)

Step4：Take 1pcs of ⑥terminal component and crimp it with the cable conductor, as the picture shown below. (please refer to the appendix at the end of this manual for more crimping information)



端子压接高宽度尺寸，“W”:为压接宽度，“H”为压接高度（相应线径的压接高宽度尺寸及拉力标准参考手册后的附录）

Terminal crimping quality depends on 2 parameters: "W" crimping width and "H" crimping height.(Please refer to the appendix at the end of this manual for details)

(1) 建议使用附录中的线材，如果要使用客户定制的线材，请联系当地销售，让他们提供延伸的产品

Cables written in the appendix are highly recommended for crimping, please contact our local sales for help if you want to use other cables out of this table

(2) 客户需要重新确认压接区域横截面和拉力测试，这两项达到压接的质量标准

A good crimping process is determined by 3 factors: W、H and tensile test result, please confirm these 3 targets specified are met after crimping

(3) 横截面仅供参考（其他举例：等边六变形的横截形状），客户负责采购压接工具或刀模

Cross section shape is only for reference(other possibilities: hexagonal section), all crimping tools needed are supposed to be prepared by customers

步骤5：将绝缘筒安装在端子压紧区，安装时注意绝缘套凸台方向，然后将线缆上的 O型圈套在绝缘套上的凹槽处

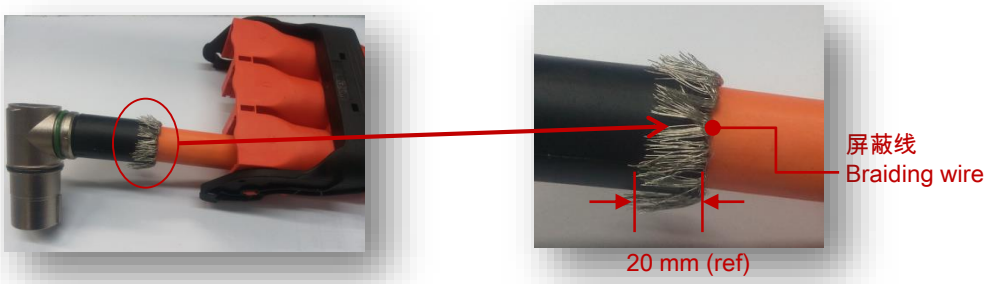
Step5：Take 1 pair of ⑤insulators and buckle up together on ⑥terminal component then bring ④O-ring into the groove of ⑤insulators

步骤6：屏蔽处理

Step6：Shielding braid processing

6-1 将屏蔽线将顺翻回至O型圈外，并修剪保留长度约20mm

6-1 Take all braid outside of ⑤insulators and cut it into a length about 20mm

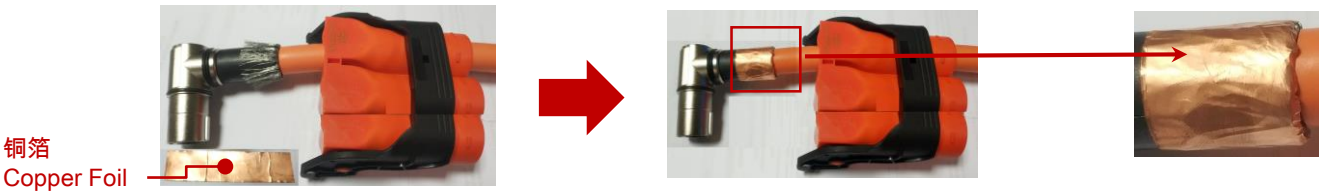


6-2 取尺寸约120mm*25mm的铜箔

6-2 Prepare a piece of copper foil of 120mm*25mm

6-3 将铜箔紧紧包裹住屏蔽线, 捏紧尾部

6-3 Wrap the braid tightly with the copper foil as the shown below

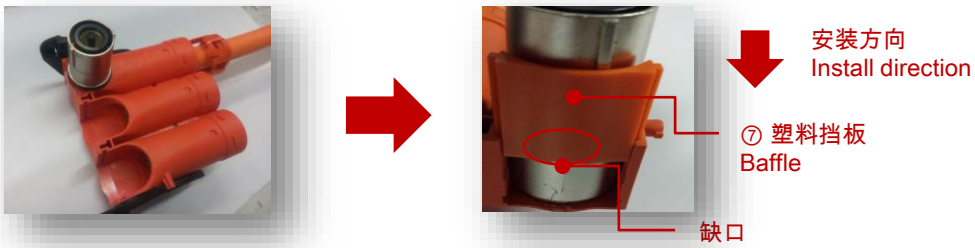


备注：根据线材类型变化，选择使用铜箔的用量. 厚屏蔽结构的线不要求包铜箔

Note：Copper foil can vary depending on different cables, copper foil wrapping may not be necessary for thick Shielding layers

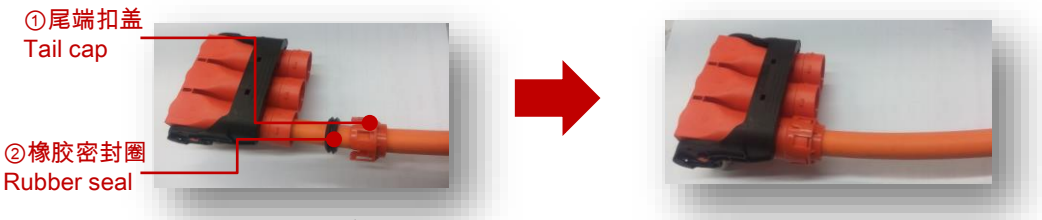
步骤7：将塑料外壳部件推至最前，并装上顶端塑料挡板

Step7：Push ③housing shell to the far end of ⑥terminal component then insert ⑦baffle into ③housing shell as shown below



步骤8：按照图示将线缆上的橡胶密封圈及尾端扣盖装配到位

Step8：Push ②rubber seal and ①tail cap to buckle them up together as shown below



步骤9：按上述方法安装另一/两条线，完成组装

Step9：Do it in the same way for the other 2pos

步骤10：建议客户参考下面的测试参数,对线束进行绝缘电阻测试和耐压测试

Step10：Insulation resistance and dielectric withstand voltage tests are obligated to be done according to below test parameters to guarantee the good electric performance of the whole harness

10-1 绝缘电阻测试

10-1 Insulation Resistance Test

位置 Positions	测试电压（直流） Test Voltage(DC)	绝缘电阻 Insulation Resistance
电缆到壳体 Cable(power) to shell	1000 V	> 500 MΩ
电缆到高压互锁 Cable(power) to HVIL	1000 V	> 500 MΩ
高压互锁到壳体 HVIL to shell	1000 V	> 100 MΩ

10-2 耐压测试

10-2 Dielectric Withstand Voltage Test

位置 Positions	测试电压（直流） Test Voltage(DC)	漏电流 Leakage Current
电缆芯线到壳体 Cable(power) to shell	5000 V	<5mA
电缆芯线到高压互锁 Cable(power) to HVIL	5000 V	<5mA
高压互锁到壳体 HVIL to shell	500 V	<5mA

PL 58 2X - 301 - 70

产品类型 Product Type		插头类型 Plug Type		键位&颜色 Key & Color		系列 Series		线束尺寸 Cable Size	
PL	PowerLok™	58	插头连接器，弯头，非屏蔽 Plug connector, right angle , Unshielding	2X	2芯，X 键位 橙色 2POS , Key "X" Orange	300	300系列 300 Series	35	35mm²
				2Y	2芯， Y 键位 黑色 2POS , Key "Y" Black			50	50mm²
				3X	3芯，X 键位 橙色 3POS , Key "X" Orange	301	带高压互锁的300系列 300 Series With HVIL		
				3Y	3芯， Y 键位 黑色 3POS , Key "Y" Black			70	70mm²

安装步骤 Installation Steps

步骤1：取出连接器, 如图示拆开零件

Step1：Take out the connector and take it apart as the picture shown below

①尾端扣盖 Tail cap ×2

②橡胶密封圈 Rubber seal ×2

③壳体部件 Housing shell ×1

④O型圈 O-ring ×2

⑤一套绝缘套 A set of Insulators ×2

⑥端子组件Terminal component ×2

⑦塑料挡板 Baffle ×2

注意：图示为二芯配件，三芯的配件数量为：①尾端扣盖 ×3，②橡胶密封圈 ×3， ③壳体部件×1 ④O型圈 ×3，⑤一套绝缘套 ×3，⑥端子组件×3，⑦塑料挡板×3，三芯安装方式与二芯安装方法相同

Note：Picture above shows all parts of 2pos connector. Parts of 3 pos connector are: ①tail cap ×3, ②rubber seal ×3, ③housing shell ×1, ④O-ring ×3, ⑤A set of Insulators ×3, ⑥Terminal component ×3, ⑦Baffle×3, the installation method of three POS is the same as that of 2 POS

步骤2：选取合适线缆(参考手册最后的附录），按照表2尺寸剥离绝缘皮和外皮

Step2：Select the right cable(refer to the appendix), then prepare the cable according to the sketch and Table 2 below

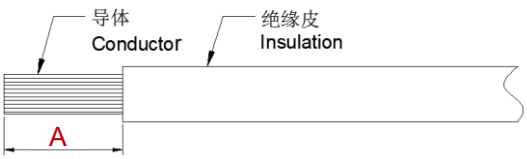


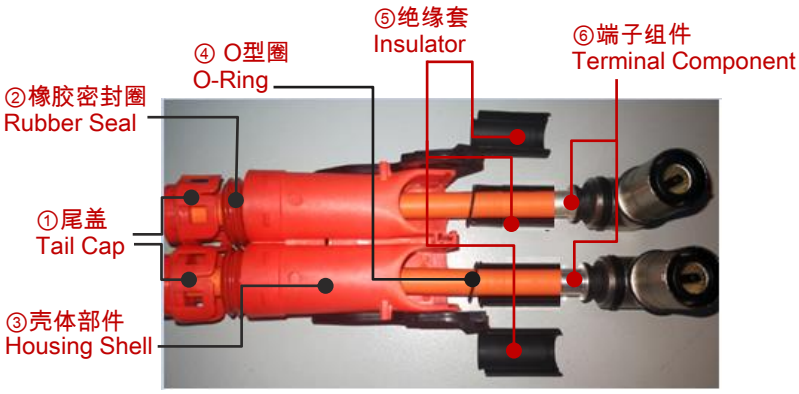
表2: 剥皮尺寸

Table 2: Strip length

线材尺寸 Cable Size	电线外径 Wire OD	A (mm)	线材料号 Powerlink Cable PN
35mm²	11.50±0.3	18±1	7P0035U
50mm²	13.60±0.3	18±1	7P0050U
70mm²	15.50±0.3	18±1	7P0070U

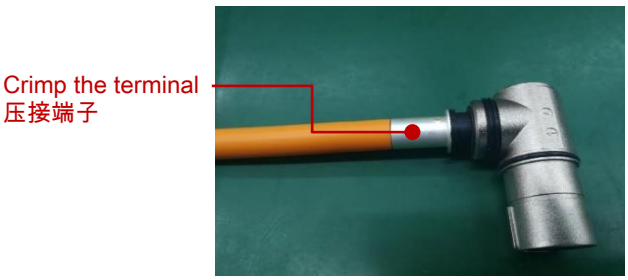
步骤3：自右端依次穿①尾盖,②橡胶密封圈,③壳体部件,④O-型圈,⑤绝缘套到线缆上, 最后线缆右端穿⑥端子组件

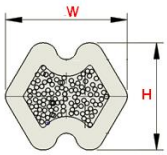
Step3： Make ①tail cap, ②rubber seal, ③housing shell, ④O-ring, ⑤insulators through the cables in the right order then insert cable conductor into ⑥ terminal component as shown below



步骤4：压接端子(规格参照手册最后的附录,附录数据仅供参考)

Step4：Crimp ⑥terminal component with the cable conductor, as the picture shown below.(please refer to the appendix at the end of this manual for more crimping information)





横截面
cross section

端子压接高宽度尺寸，“W”:为压接宽度，“H”为压接高度（相应线径的压接高宽度尺寸及拉力标准参考手册后的附录）

Terminal crimping quality depends on 2 parameters: "W" crimping width and "H" crimping height.(Please refer to the appendix at the end of this manual for details)

(1) 建议使用附录中的线材，如果要使用客户定制的线材，请联系当地销售，让他们提供延伸的产品

Cables written in the appendix are highly recommended for crimping, please contact our local sales for help if you want to use other cables out of this table

(2) 客户需要重新确认压接区域横截面和拉力测试，这两项达到压接的质量标准

A good crimping process is determined by 3 factors: W、H and tensile test result, please confirm these 3 targets specified are met after crimping

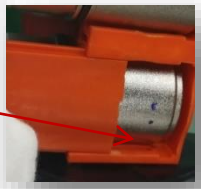
(3) 横截面仅供参考（其他举例：等边六变形的横截形状），客户负责采购压接工具或刀模

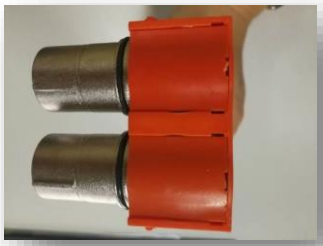
Cross section shape is only for reference(other possibilities: hexagonal section), all crimping tools needed are supposed to be prepared by customers

步骤5：依次装回绝缘套和O型圈, 用力推动插头插入到外壳底部

Step5：Buckle up ⑤insulators and bring ④O-ring into the groove of ⑤insulators as shown below. Push ③ housing shell to the far end of ⑥terminal component.

步骤6：安装挡板
Step6：Insert ⑦baffle in the slot of ③housing shell as shown below





步骤7：安装橡胶密封圈和尾盖
Step7：Push ②rubber seal into ③housing shell and buckle up ①tail cap on ③housing shell

步骤8：建议客户参考下面的测试参数,对线束进行绝缘电阻测试和耐压测试
Step8：Insulation resistance and dielectric withstand voltage tests are obligated to be done according to below test parameters to guarantee the good electric performance of the whole harness

8-1 绝缘电阻测试
8-1 Insulation Resistance Test

位置 Positions	测试电压（直流） Test Voltage(DC)	绝缘电阻 Insulation Resistance
电缆到壳体 Cable(power) to shell	1000 V	> 500 MΩ
电缆到高压互锁 Cable(power) to HVIL	1000 V	> 500 MΩ
高压互锁到壳体 HVIL to shell	1000 V	> 100 MΩ

8-2 耐压测试
8-2 Dielectric Withstand Voltage Test

位置 Positions	测试电压（直流） Test Voltage(DC)	漏电流 Leakage Current
电缆芯线到壳体 Cable(power) to shell	5000 V	<5mA
电缆芯线到高压互锁 Cable(power) to HVIL	5000 V	<5mA
高压互锁到壳体 HVIL to shell	500 V	<5mA

附录APPENDIX

线缆压接的参考规范
Reference specification for cable crimping

线缆类型 Cable Type	电线尺寸 Cable Size	导体结构 (mm) Conductor	导体外径(mm) Conductor OD	电线外径(mm) Wire OD	压接高度H(mm) Crimping height	压接宽度W(mm) Crimping Width	参考保持力 Retention Force
屏蔽线 Shielded cable	35mm²	3071*0.12	8.10	14.50±0.3	9.5±0.2	11.0±0.2	2300N
	50mm²	4403*0.12	9.5	17.00±0.3	11.5±0.2	13.3±0.2	2800N
	50mm²	385*0.41	9.4	14.90±0.3	13.3±0.2	12.2±0.2	2800N
	70mm²	3876*0.15	11.8	19.50±0.3	13.0±0.2	15.0±0.2	3400N
	70mm²	360*0.51	11.6	17.00±0.3	15.0±0.2	13.26±0.2	3400N
非屏蔽线 Un-shielded cable	35mm²	3071*0.12	8.10	11.50±0.3	9.5±0.2	11.0±0.2	2300N
	50mm²	4403*0.12	9.5	13.60±0.3	11.5±0.2	13.3±0.2	2800N
	50mm²	385*0.41	9.4	11.5±0.3	13.3±0.2	12.2±0.2	2800N
	70mm²	3876*0.15	11.8	15.50±0.3	13.0±0.2	15.0±0.2	3400N
	70mm²	360*0.51	11.6	13.7±0.3	15.0±0.2	13.26±0.2	3400N

Amphenol Technical Products International provides the above product specifications for the standard PowerLok™ series of connectors to assist users in identifying the correct product for the system to which the connectors may be applied. Specifications are subject to change without notice. Contact your nearest Amphenol Corporation Sales Office for the latest specifications. All statements, information and data given herein are believed to be accurate and reliable but are presented without guarantee, warranty, or responsibility of any kind, expressed or implied. Statements of suggestions concerning possible use of our products are made without representation or warranty that any such use is free of patent infringement and are not recommendations to infringe any patent. Specifications are typical and may not apply to all connectors. Note that these specifications are derived from relevant global standards used in the automotive and industrial transportation markets, but they are not a substitute for system level design validation testing, which is the sole responsibility of the system designer and/or end user.

Amphenol Technical Products International

Asia Pacific
GuangZhou, China
Tel: +86 20-3210 6099
Add: No.5 JianTa Shan Road, GuangZhou Science city
Postal code: 510663

North America
Winnipeg, Canada
Tel: +1 204 697 2222
Add: 2110 Notre Dame Avenue

Europe
Milano, Italy
Tel: +39 02 932541
Add: Via Barbaiana 5, 20020 Lainate(MI)

Email: info@amphenol-tpi.com